



# FIRST USDA ELECTRONIC TABLE OF COOKING YIELD FACTORS

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## Processing Cooking Yield Factors in The USDA National Nutrient Database

### Abstract

#### Objective

To develop a process for capturing and releasing Cooking Yield Factors electronically on The Nutrient Data Laboratory (NDL) Web site [www.nal.usda.gov/fnic/foodcomp](http://www.nal.usda.gov/fnic/foodcomp). These data are used by other government agencies and have been regarded as benchmark marks for use in nutrition monitoring, research and policy development.

#### Methods and Materials

Data from Agriculture Handbook No. 102 (AH-102) were reviewed, revised and assimilated into the Cooking Yield Table. Some of the new data came from moisture and weight change determinations made on various foods in NDL's food preparation laboratory. In addition, contract analyses were performed at the University of Wisconsin on several meat and poultry products.

#### Results

Data from NDL's food lab and contract analyses provided new yield factors as well as expanding the yield table to include additional foods and cooking methods. Revisions made to existing items in the electronic version included changes in some food name descriptions, a categorization of preparation methods, and incorporation of any new % yield and % moisture change data. New data processing capabilities in The Nutrient Data Bank System enable calculation of yields and retentions from weight and nutrient records and provide the mechanism for dissemination of these data in electronic format.

#### Significance

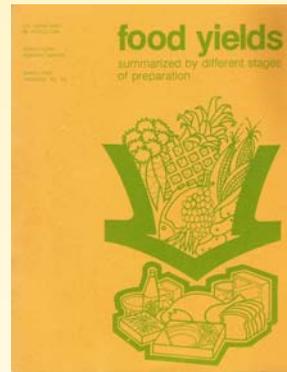
Since 1950 USDA Agriculture Handbook No. 102, Food Yields (AH-102) has been referenced for use by food service operations, the food industry and universities. In the past, these data have only been available in hard copies of AH-102. The Nutrient Data Bank System allows data for the first time to be disseminated in a table electronically. The table is available in two formats, ASCII and PDF file, which are mounted on NDL's Web site. New fields have been included on the table, which are not currently in AH-102. These fields are food identifiers and statistically information. The results have been applied to food nutrient values and weight updates in the USDA National Nutrient Database for Standard Reference

#### Cooking Yield Data:

Reflect the changes in weight due to moisture and fat gains and/or losses. Yield Factors are normally reported to the nearest 1 percent.

#### Nutrient Retention Factors:

Account for vitamin and mineral losses during cooking. Retention factors are normally reported to the nearest 5 percent and value above 100 percent are reported as 100 percent.



Food	Preparation Method	Yield (%)		Moisture Change (%)		Fat Gain/Loss (%)	
		Yield	Moisture	Yield	Moisture	Yield	Moisture
188	Tortilla, Flour	98%	7	1.01	90%	99%	-1.81%
18	Tortilla, Flour	98%	8	1.65	93%	98%	-3.79%
18	Tortilla, Flour	99%	8	2.91	91%	99%	-5.33%
22	Burrito, Frozen	90%	6	4.25	88%	98%	-10.87%
22	Burrito, Frozen	97%	6	1.46	95%	99%	-2.98%

Fig. 2 Weights and Measures at Initial

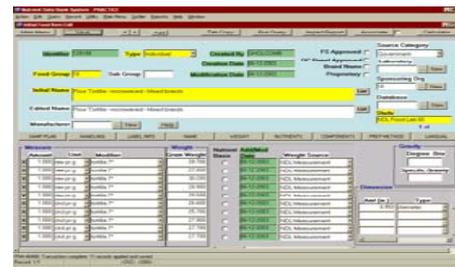


Fig. 4 Yield and Retention Utility

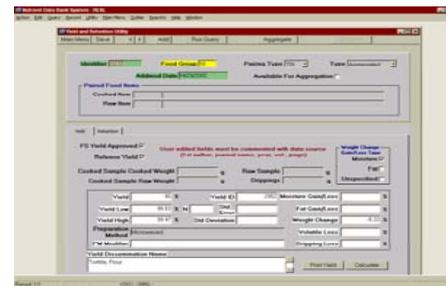


Table 2 NDL Food Lab Burrito Results

	Tina's	Tina's	Patro	Patro	Patro	Don Miguel
Microwave	149.3g	144.7g	162.6g	135.1g	143.1g	200.5g
	131.9g	124.7g	148.1g	119.0g	128.9g	197.2g
	88.3%	86.2%	91.1%	88.1%	90.1%	98.3%
Oven	143.8g	149.8g	141.8g	141.3g	141.4g	203.9g
	139.2g	145.2g	136.3g	134.7g	146.1g	201.1g
	96.8%	96.9%	96.1%	95.3%	99.1%	98.6%

Fig. 3 Yield and Retention Utility Aggregation

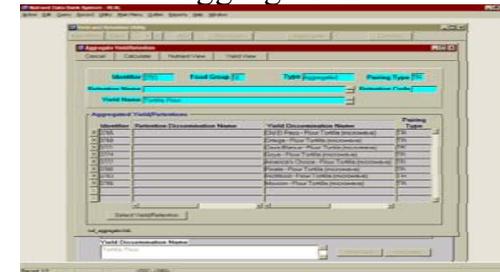


Table 3 Electronic Format of Cooking Yield Factors

FD Gr	Yield Dissemination Name	Preparation Method	%Yield	N	Std Dev	Yield Min	Yield Max	Misture Gain/Loss	Fat Gain/Loss	Weight Change	Percent Drippings	Percent Volatile
18	Tortilla, Flour	Baked or roasted, covered Flaked in oven at 350F for 10 min	98%	7	1.01	90%	99%	-1.81%		Yes		
18	Tortilla, Flour	Flaked in pan, sauteed Flaked in skillet, no oil added	98%	8	1.65	93%	98%	-3.79%		Yes		
18	Tortilla, Flour	Microwave	99%	8	2.91	91%	99%	-5.33%		Yes		
22	Burrito, Frozen	Microwave	90%	6	4.25	88%	98%	-10.87%		Yes		
22	Burrito, Frozen	Baked or roasted, covered Flaked in oven at 350F for 60 min	97%	6	1.46	95%	99%	-2.98%		Yes		